WHAT IS CLAIMED IS:

1. A motor drive method for a motor driver having a plurality of output circuits each including an upper side switching element and a lower side switching element connected in series, and a current detection resistance connected in series with the plurality of output circuits in common for detecting a current supplied to the plurality of output circuits, the motor driver supplying a current to a motor from a connection point between the upper side switching element and the lower side switching element of each of the output circuits, the motor drive method comprising the steps of:

determining a position signal corresponding to the position of a rotor of the motor;

selecting one switching element of one of the plurality of output circuits according to the position signal and turning ON the selected switching element for a time period corresponding to a predetermined electrical angle; and

repeatedly switching lower side switching elements of a plurality of output circuits among the remaining ones of the plurality of output circuits when the selected switching element is an upper side switching element, while repeatedly switching upper side switching elements of a plurality of output circuits among the remaining ones of the plurality of output circuits when the selected switching element is a lower side switching element,

wherein in the switching step, the switching operation is controlled according to an input torque command signal and a voltage generated at the current detection resistance so that each of a plurality of periods obtained by dividing the time period corresponding to the predetermined electrical angle includes a first period in which one of the switching elements to be switched is turned ON and a second period in which another one of the switching elements is turned ON.

2. The method of claim 1, wherein in the switching step, the first period is started when a reference pulse is input, and is terminated when the voltage generated at the current detection resistance reaches a target signal.

3. The method of claim 2, wherein in the switching step, upon receipt of the reference pulse, all the switching elements to be switched are turned OFF and then the first period is started.

4. A motor drive method for a motor driver having an even number of output circuits that is four or more each including an upper side switching element and a lower side switching element connected in series, and a current detection resistance connected in series with the output circuits in common for detecting a current supplied to the output circuits, the motor driver supplying a current to a motor from a connection point between the upper side switching element and the lower side switching element of each of the output circuits, the motor drive method comprising the steps of:

determining a position signal corresponding to the position of a rotor of the motor;

selecting one switching element of one of the output circuits according to the position signal, and, for a time period corresponding to a predetermined electrical angle, turning ON a pair of the selected switching element and a lower side switching element of the output circuit corresponding to a phase opposite to a phase corresponding to the output circuit including the selected switching element when the selected switching element is an upper side switching element, while turning ON a pair of the selected switching element and an upper side switching element of the output circuit corresponding to a phase opposite to a phase corresponding to the output circuit including the selected switching element when the selected switching element is a lower side switching element; and

repeatedly switching each pair of any one of the lower side switching elements of a plurality of output circuits among the remaining ones of the output circuits and the upper side switching element corresponding to a phase opposite to a phase corresponding to the output circuit including said one lower side switching element when the selected switching element is an upper side switching element, while repeatedly switching each pair of any one of the upper side switching elements of a plurality of output circuits among the remaining ones of the output circuits and the lower side switching element corresponding to a phase opposite to a phase corresponding to the output circuit including said one upper side switching element when the selected switching element is a lower side switching element,

wherein in the switching step, the switching operation is controlled according to an input torque command signal and a voltage generated at the current detection resistance so that each of a plurality of periods obtained by dividing the time period corresponding to the predetermined electrical angle includes a first period in which one pair of the switching elements are turned ON and a second period in which another pair of the switching elements are turned ON.

5. The method of claim 4, wherein in the switching step, the first period is started when a reference pulse is input, and is terminated when the voltage generated at the current detection resistance reaches a target signal.

6. The method of claim 5, wherein in the switching step, upon receipt of the reference pulse, all the switching elements to be switched are turned OFF and then the first period is started.

7. A motor drive method for a motor driver having a plurality of output circuits each including an upper side switching element and a lower side switching element connected in series, and a current detection resistance connected in series with the plurality of output circuits in common for detecting a current supplied to the plurality of output circuits, the motor driver supplying currents to motor coils of a plurality of phases from a connection point between the upper side switching element and the lower side switching element of each of the output circuits,

wherein a period in which respective phase currents for the motor coils of the plurality of phases flow simultaneously is divided into pulse width modulation (PWM) control periods, and

in each of the PWM control periods, a PWM control is performed by providing said each of the PWM control periods with a period in which the switching elements are selectively turned ON until a signal corresponding to the value of a current flowing each of the switching elements coincides with a signal obtained from the current detection resistance such that a current flowing through the current detection resistance is the same as a current passing through specific one of the upper and lower switching elements, and a period in which phase currents for phases other than a phase relating to the specific switching element are made in regenerative states.

8. A motor driver having a plurality of output circuits each including an upper side switching element and a lower side switching element connected in series, for supplying a current to a motor from a connection point between the upper side switching element and the lower side switching element of each output circuit, the motor driver comprising:

a current detection resistance connected in series with the plurality of output circuits in common for detecting a current supplied to the plurality of output circuits;

a position detection section for outputting a position signal corresponding to the position of a rotor of the motor;

a phase switch circuit for selecting one switching element of one of the plurality of output circuits according to the position signal and turning ON the selected switching element for a time period corresponding to a predetermined electrical angle, and repeatedly switching lower side switching elements of a plurality of output circuits among the remaining ones of the plurality of output circuits when the selected switching element is an upper side switching element, while repeatedly switching upper side switching elements of a plurality of output circuits among the remaining ones of the plurality of output circuits when the selected switching element is a lower side switching element; and

an ON-period control section for generating a switching control signal for controlling the switching operation by the phase switch circuit according to an input torque command signal and a voltage generated at the current detection resistance so that each of a plurality of periods obtained by dividing the time period corresponding to the predetermined electrical angle includes a first period in which one of the switching elements to be switched is turned ON and a second period in which another one of the plurality of switching elements is turned ON, and outputting the generated signal.

9. The motor driver of claim 8, wherein the ON-period control section comprises:

a torque signal generation circuit for obtaining, according to the torque command signal and the position signal, a first target signal corresponding to a target value of a current that should flow to the current detection resistance during the first period and a second target signal corresponding to a target value of a current that should flow to the current detection resistance during the second period, and outputting the target signals;

a first comparator for determining whether or not the voltage generated at the

current detection resistance exceeds the first target signal and outputting the result;

a second comparator for determining whether or not the voltage generated at the current detection resistance exceeds the second target signal and outputting the result; and

a logic control circuit for generating the switching control signal according to a reference pulse for defining the period of the switching operation and the outputs of the first and second comparators and outputting the generated signal,

wherein the logic control circuit generates the switching control signal so that the first period is terminated when the first comparator determines that the voltage generated at the current detection resistance has exceeded the first target signal and that the second period is terminated when the second comparator determines that the voltage generated at the current detection resistance has exceeded the second signal, and outputs the generated signal.